

Range Livestock Industry

Cattle and sheep grazing has been the dominant renewable resource use on California's hardwood, shrub, grass, and desert lands for decades. Cattle and sheep convert forage from lands that are generally too dry, steep, rocky, or otherwise unsuitable for crop production into high quality meat protein, leather, wool, and a variety of other products. The livestock industry in California not only creates economic benefits to the forest and rangeland communities, the rangeland they manage also provides substantial ecosystem services such as preservation of open space, watershed values, and recreation.



The livestock industry in California creates economic benefits and maintains lands that provide substantial ecosystem services.

Several factors are reshaping the range livestock industry. These include:

- a shifting emphasis of consumption away from domestic beef and sheep products; increased international competition in meat production;
- increasing emphasis on rangelands to provide and protect an array of environmental services such as water quality and biodiversity;
- changes in the market and processing structure of the U.S. livestock industry;
- land development pressures; and
- The evolution and application of ways to reimburse ranchers for non-livestock services, such as through conservation easements.

These factors have combined to redefine the economic context for livestock producers that rely on forests and rangelands in California. Some environmental concerns, such as maintenance of open space, are providing opportunities for some ranchers to continue operations and preserve the many ecological and social values offered by operating ranches.

Findings on status of range livestock industry

Kinds of economic products

Sheep and cattle provide a wide variety of products. Cattle provide live animals, meat, and industrial, household, pharmaceutical, and food byproducts (California Beef Council, 2001). Sheep produce wool, lamb, mutton, and a host of related products. Approximately 80 percent of sheep are raised for meat. Sheep byproducts can be used for a range of goods similar to those for cattle, as well as for such things as instrument strings, surgical sutures, artist's brushes, insulation, carpets, felt, sheepskin seat covers, and upholstery (American Sheep Industry Association, 2002a).

Overview of the economic importance of the range livestock industry in California

The beef and dairy cattle industry

Within California's highly diverse and technology dominated economy, the 1999 direct contribution to California's \$1.2 trillion economy from cattle and calves, sheep, and wool was just a fraction of one percent. By one estimate, however, the direct and indirect effects of California's cattle industry alone are closer to \$3.6 billion annually in total industry output across the economy. The cattle industry also provides over 26,000 jobs (Lawrence and Otto, 2001).

Importance of California's livestock industry in the U.S.: Both the cattle and sheep industries in California are still among the most significant by size in the United States. In 2000, California's sheep industry ranked second nationally and produced 12 percent of the total U.S. share. California's cattle industry, ranked seventh nationally and had four percent of the total national share. California's wool industry ranked third in the U.S. and had nine percent of U.S. production (California Agricultural Statistics Service, 2000).

The livestock, poultry and products industry in California represents about 25 percent of the total gross farm cash income of the State's total agricultural sector. California's livestock, poultry and products industry has four significant components: cattle, sheep, hogs, and poultry. Cattle and sheep (cattle and calves; milk and cream; sheep and lambs; and wool as shown in Table 1) account for about 80 percent of the income produced by the industry. Within the cattle industry, dairy and beef are the two major sectors. To a large degree, dairy and beef use common inputs such as feed, supplies, and support services. The dairy industry is also a significant supplier of animals for the beef industry. It sells live animals for fattening and slaughter, as well as animal feed such as byproducts from milk processing. Although it is a net exporter of calves, California also has a significant feedlot presence (Lawrence and Otto, 2001).

Table 1. Farm income by source and commodity type, 1997-2000 (million dollars)

Source of income by commodity type	1997		1998		1999		2000	
	Million \$	Percentage of total	Million \$	Percentage of total	Million \$	Percentage of total	Million \$	Percentage of total
Gross Farm Cash Income	27,185.2	100	25,567.6	100	26,948.0	100	27,162.1	100
Livestock, poultry, products	6,306.9	25	6,531.0	26	6,650.8	25	6,269.0	23
Cattle and calves	1,257.0	20	1,048.3	16	1,233.1	19	1,267.0	20
Milk and cream	3,639.7	58	4,140.7	63	4,091.0	62	3,703.9	59
Sheep and lambs	80.4	1	51.9	1	56.6	1	57.5	1
Wool	3.0	<1	1.3	<1	1.3	<1	1.2	<1

Source: California Agricultural Statistics Service, 2000

Over the last decade, both California's agriculture and its livestock sub-sector have declined in relative importance within the State's economy. This is because of the enormous growth in technology and knowledge based industries. In 1975, livestock and poultry and products accounted for 33 percent of California's total agricultural production by value. By 2000, it had fallen to approximately 23 percent (Johnson and Carter, 2000).

Among livestock and poultry related commodities, milk and cream account for over half the total income. Income from cattle and calves averaged about 17.5 percent of the income from the livestock and poultry products for 1997-99. For the same period, cattle and calves provided about four percent of California's total Gross Farm Cash Income (across all sources). Cattle and calves as a source of cash receipts by agricultural commodity ranked fourth in 1998 and fifth in 1997 (Kuminoff et al., 2000a).



Cattle provide live animals, meat, and a variety of byproducts

In 1990, 39 California counties had cattle and calf production values (beef and dairy) within their top five agricultural commodities. In 2000, Sacramento, San Benito, Santa Barbara, and Santa Clara counties no longer had cattle and calf production values among their top five agricultural commodities. In 2001, based on the value of production, cattle and calves was the leading agricultural commodity in nine counties: Calaveras, Imperial, Mariposa, Nevada, Plumas, Shasta, Sierra, Trinity, and Tuolumne (California Agricultural Statistics Service, 2001a)

Livestock industry on forest and rangelands

Sales of beef cattle comprise over 90 percent of the income generated from livestock operations on forest and rangelands. From 1992, total sales in beef cattle (excluding feedlots) were approximately \$654 million. This decreased approximately four percent in 1997 (the last date for which data is available) to about \$630 million. This accounted for approximately half of all cattle sales in 1997 of the \$1.41 billion from all farms including dairy and feedlots (National Agricultural Statistics Service, 2001a).

The statewide value of sheep production has declined over the last decade and in 1999 amounted to \$58 million. Top California counties for sheep production included Kern, Solano, Imperial, Fresno, and Merced. While each of these counties contains open rangeland, a large portion of their contribution comes from production in feedlots.

Profitability of livestock industry

Over the last 30 years, profits of U.S. agricultural production have averaged two to three percent (Economic Research Service, 2000c). This has led to concentration and consolidation of agricultural production and marketing. An example of this is increased concentration in retail food market chains. Another impact is to increase the coordination among processors and marketers with increased use of e-commerce to reach consumers directly.

American livestock producers have higher land, labor, and other costs of production than producers in many less developed nations. Global competition and supplies effectively cap retail livestock prices. U.S. livestock prices are for the most part determined at the retail level. This has been accentuated in recent years when the U.S. dollar is strong relative to the currencies of other beef and sheep exporting countries such as Australia and New Zealand. To the extent that world competition (supply) holds down retail prices for livestock and meat, this means lower prices to American producers.

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The California livestock industry is no exception. The profit margins of livestock producers have been squeezed by depressed market prices and higher feed costs. For example, in 1996, the top three factors limiting the profit of sheep farmers were reported to be price volatility (50 percent of operations), feed (42.9 percent), and land (35.2 percent). To a degree, Californian and other American producers have been able to offset lower costs in other nations by increasing efficiency, productivity, creating new products, and developing niche markets. By one estimate, using a value-weighted quantity index of productivity, output of livestock increased more than three-fold since 1949 (Alston and Zilberman, 1998). However, this increased productivity and use of technology leads to concentration of the commercial operations (Crowder, 1996).

Over the past decade in the U.S., costs of inputs used by domestic cattle producers have increased approximately 12 percent while the prices received for cattle have declined about 10 percent (Blank 1999). Real cattle prices (adjusted to inflation) have dropped to about one-third of the price that producers received in 1950. This follows the trend of poor profits in the U.S. cattle industry from 1996-2000. In this period, between 34 and 43 percent of the cattle business in the United States showed negative profit (Economic Research Service, 2002).

However, in 1998-2000, national per capita beef demand rose for the first time in two decades and cattle prices improved (Warner, 2000). According to Cattle-Fax data, the average beef cow-calf operator reported a profit of \$36.19 per cow in 1999.

Grazing enterprises can be quite risky. Livestock, hay, and other input prices may swing widely from year to year. In addition, forage production may vary greatly due to differences in annual rainfall and temperature. These factors create substantial annual variation in returns. The ability of a rancher to deal with the risk relates to available financial resources, borrowed capital, interest rates, and management approaches (Standiford, 1999).

In a strict economic sense, ranching profits are capitalized into land values. The higher the profit over time, the higher the land value. Over the last decade, rangeland values have been relatively stable or slightly increasing across various regions of California. In many places, this reflects value of the land for speculation, and does not indicate long-term economic sustainability for California's range industry.

Rangeland values: Several factors influence land values for grazing enterprises. These include livestock prices, management practices, rangeland productivity, availability of improvements such as fences or water sources, forage quality, other sources of income such as firewood, access to other feed sources, and risk.

In part, profits are reflected in values for rangelands. These vary by region, but in general have increased since 1992. This is shown for a composite of rangeland values in Table 2. For the year 2000, values per acre remained stable or were slightly increasing. However, there is a question about how much of this rising value relates to range worth or to value for potential non-range uses (American Society of Farm Managers and Rural Appraisers, 2000)

Table 2. Rangeland value per acre by county

County	Description	Values per acre	Activity and trend in 2000
Colusa, Glenn, Butte, and Tehama	Rangeland	\$300 to \$1,100	Slightly Increasing
Lassen, Modoc, Shasta, and Siskiyou	Irrigated pasture/meadow	\$500 to \$2,000	Stable
	Rangeland	\$50 to \$150	Stable
	Dry pasture	\$100 to \$400	Stable
	Cattle ranches		
	Inside operation (0-15% public)*	\$1,500 to \$3,500	Stable/slightly increasing
	Range operation (>15% public)**	\$1,000 to \$1,800	Stable
Merced	Rangeland	\$400 to \$650	Limited/slightly increasing
Stanislaus	Rangeland	\$700 to \$2,000	Stable/stable
San Joaquin	Rangeland	\$500 to \$1,500	Limited/stable
Fresno	Rangeland (West)	\$125 to \$250	Limited/stable
	Rangeland (East)	\$300 to \$750	Limited/stable
Madera	Rangeland	\$500 to \$1,000	Limited/stable
	Dry Pasture	\$800 to \$1,000	Limited/stable
Kern	Rangeland (West)	\$100 to \$200	Slow/stable
	Rangeland (East)	\$250 to \$700	Steady/stable
Tulare	Rangeland	\$200 to \$700	Steady/stable
Kings	Rangeland (West)	\$75 to \$125	Steady/stable
Monterey	Rangeland	\$200 to \$700	Stable/stable
San Luis Obispo	Coastal rangeland	\$900 to \$2,100	Stable/stable
	Inland rangeland	\$175 to \$600	Stable/increasing
Santa Barbara	Rangeland	\$500 to \$8,500	Strong/increasing

*15 percent or less included within the sale was BLM leased land

**Greater than 15 percent included within the sale was BLM leased land

Source: American Society of Farm Managers and Rural Appraisers, 2000

In parts of California, grazing and values such as hunting are reflected in only a small fraction of the actual land value, especially in hardwood rangelands. These can relate to other agricultural uses or to subdivision. In the Central Coast region of California, grazing land value may be worth less than 10 percent of the value of the land for alternative uses such as \$8,000 per acre for vineyard development or \$20,000 for residential parcels. In some instances, the amenity value of the land (such as oak cover or oak-dominated vistas may far exceed its worth for grazing (Standiford, 1999).

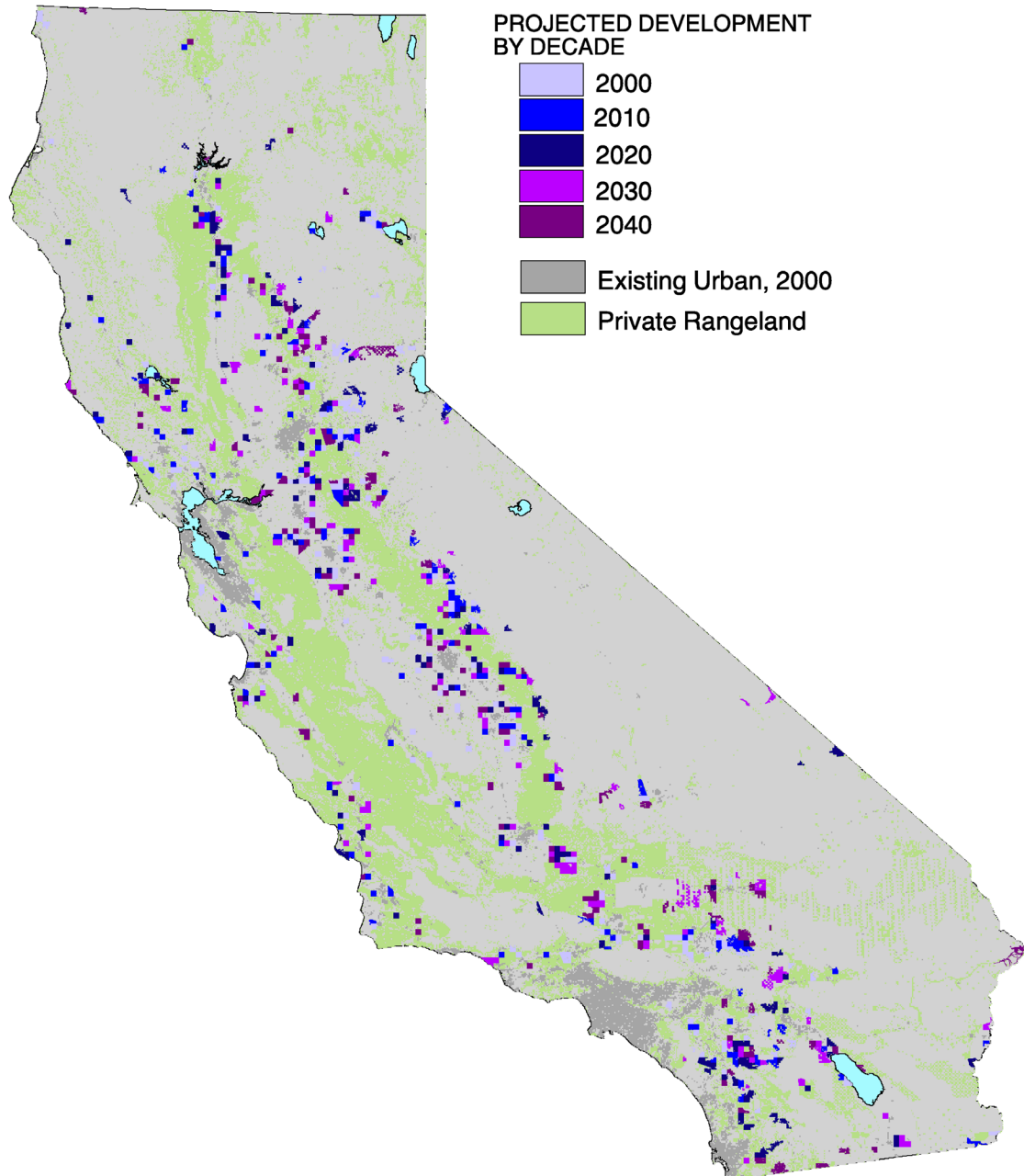
Maintenance of the range component of the working landscape

The range resource makes up the majority of California's working landscape, i.e. those lands primarily managed for commodity production and/or services in California (see [Range Area and Condition or Population and Land Use: Ownership, and Management Patterns](#)). While some of these

lands have been purchased and moved into the Reserve management class, the bulk of the lands are subject to a variety of land use pressures.

Figure 1 shows the projected locations of development (housing unit density of at least one unit per 20 acres) by the year 2040 on all private land in California. Within this projection is the existing private rangeland base highlighted in green. Between 1990 and 2010, over one million acres of rangeland is projected for development. Based on total acreage of projected development between 1990 and 2040, range resources are under the most development pressure in counties associated with the Sierra bioregion.

Figure 1. Projected development on private rangelands (2000-2040)



Source: FRAP, 2003; FRAP 2002

Over the last decade, the economic importance of the range resource to society has grown in its ability to absorb and buffer development, as well as provide open space, sources of water, and wildlife habitat. These values are hard to quantify, but the willingness of society to provide alternative income sources to ranchers indicates that rangeland values have worth for other than traditional livestock uses.

Conservation easements have been growing in popularity and market-based compensatory measures are evolving (see [Institutional Framework: Governance Shifts in the 1990s](#)). Conservation easements limit the type and intensity of future land use in perpetuity, while allowing landowners to maintain ownership and agricultural commodity production. Some have suggested offering times modules, such as in the easement program of the federal Wetlands Reserve Program. This program offers a choice of easements to the landowner—10 years, 30 years, and in perpetuity. The prospect of leased easements and annual lease payments in perpetuity may appeal to families that have held their ranches for generations. The combination of leased easements and yearly lease payments could be much more attractive than a one-time-payment, which applies only to a single generation (Kuminoff et al., 2000b).

State and local funding for open space has been strong across the United States from 1998 to 2000. In 1998, voters approved 86 percent of 150 referenda providing approximately \$8.3 billion to open space protection. In 1999, voters approved 90 percent of 102 referenda authorizing more than \$1.8 billion for open space, and in 2000 passed 174 of 209 ballot measures providing \$7.5 billion for land conservation (Land Trust Alliance, 2002a). This attitude was reflected in the passage of Propositions 12 and 13 (the Parks and Water Bonds) by California voters in March 2000.

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Non-profit land trusts have also been expanding in California. There are estimated to be over 130 land trusts now operating in California. These trusts are funded from a variety of sources, and play a key role in facilitating local conservation easements to ranchers and farmers (Kuminoff et al., 2001b).

In 1997, the range community established the California Rangeland Trust (CRT) (see [California Rangeland Trust](#)). Emphasizing continued management and grazing of ranching properties, the goal of the trust is to help ranchers stay in business. CRT provides assistance in developing better estate plans and farming options other than selling the entire ranch to meet financial obligations. To date, CRT has focused on agricultural conservation easements, indicating that nearly 50 landowners represent opportunities to preserve more than 250,000 acres (California Rangeland Trust, 2000). CRT is also seeking to address fears of ranchers associated with conservation easements that their new easement holders will force removal of livestock or disapprove of their management practices (Sinton, 1999).

Several examples are found where federal policy has also been supportive of the development of land trusts. One example is the role of land trusts in California was potentially strengthened with the passage of the American Farm and Ranch Protection Act in 1997. The law allows exclusion from estate tax up to 40 percent of land value covered by a conservation easement beyond the value of the easement itself. The amount is limited to \$500,000.

A second example is the Federal Transportation Equity Act for the 21st Century (TEA-21). This \$218 billion package reauthorized and improved the nation's primary transportation law. It provided resources to land trusts; kept the Transportation Enhancements Program; and provided over \$600 million annually for the program, a 40 percent increase over earlier levels. These funds can be used for the creation of greenways, trails, and bike paths and the purchase of conservation easements or fee title for open spaces, scenic vistas, or historical highways. States have more flexibility in matching requirements (Land Trust Alliance, 2002b).

A third example is the continued support provided by the Federal Land and Water Conservation Fund via the proposed Conservation and Reinvestment Act (CARA) in the 106th U.S. Congress. It proposed three major changes in federal conservation policy. First, it made a long-term commitment of 15 years rather than relying on annual appropriations for agency programs. Second, it used funding from a non-renewable resource to make investments in renewable resources; funding would come from a portion of the income from federal offshore oil and natural gas leases. Third, state and local governments and land trusts were given the lead role in conservation work. The issue is still undecided at this time, but it reflects the strength of land trusts, state fish and wildlife agencies, historic recreation groups, national, state, and local park organizations, outdoor recreation interests, and others for continued conservation funding.